

## **SECTION 02451**

### **GUARD RAIL**

#### **PART 1 - GENERAL**

##### **0.1 DESCRIPTION OF WORK**

- A. Work Included: This Section specifies furnishing and installing steel beam type highway guardrail.

##### **0.2 SUBMITTALS**

- A. Product Data: Provide manufacturers' literature complete describing products.
- B. Shop Drawings:
  - 1. Include cross sectional dimensions of posts, rail elements, and terminal sections.
  - 2. Include layout drawing showing spacing of posts; abrupt changes in grade; and all rail and terminal sections.
- C. Certificates: Provide certificate certifying compliance of materials with standards designated.

##### **0.3 QUALITY ASSURANCE**

- A. Erect guardrail true to line and grade and to dimensions conforming to Contract Drawings and manufacturers' instructions and recommendations.

#### **PART 2 - PRODUCTS**

##### **0.1 STEEL POSTS**

- A. Fabricated from ASTM A36 steel "H" sections and channels as indicated; hot-dip galvanized per ASTM A123, and stamped with the ASTM number and the weight of the zinc coating in ounces per square foot.

##### **0.2 RAIL ELEMENT AND TERMINAL SECTIONS**

- A. AASHTO M180, Class A, Type 2. Fit each end of the rail, for each stretch of guard, with a terminal section as indicated, using the same splice detail as for the rail. Provide shapes and profiles indicated on the Drawings.

### **0.3 BOLTS, NUTS, WASHERS**

- A. ASTM A307, galvanized per ASTM A153.

### **0.4 TOUCH-UP PAINT**

- A. Provide touch-up paint meeting requirements of paint as specified in Section 09900 - PAINTING.

### **0.5 FABRICATION**

- A. Fabricate all metal work in the shop. Do not punch, cut, or weld in the field. Where holes are required to be made in the field, drill such holes.
- B. Galvanize components of bolted assemblies separately before assembly. When necessary to straighten sections after galvanizing, perform such work without damage to the zinc coating.

## **PART 3 - EXECUTION**

### **0.1 ERECTION**

- A. Posts:
  - 1. Posts may be driven or set plumb in hand or mechanically-dug holes; then backfill with suitable material placed in layers and thoroughly compacted.
  - 2. When driving posts, use suitable caps and equipment which will not batter or injure the posts. Remove and replace posts damaged or distorted by driving.
  - 3. Where posts are to be set in areas of proposed bituminous concrete surfacing, erect posts prior to laying the surrounding finished surface.
- B. Rail:
  - 1. Erect rail so as to form a smooth continuous rail conforming to the required line and grade. Splice rail by lapping in the direction of traffic. Holes in the rail element nearer the posts shall be slotted to facilitate erection and permit expansion. Rail shall make full contact at each splice.
  - 2. Draw bolts tight except at expansion joints. At expansion joints, draw bolts as tightly as possible without preventing the rail elements from sliding past each other longitudinally.
- C. Touch-Up of Damaged Surfaces: Touch-up damaged galvanized surfaces in accordance with requirements of Section 09900 - PAINTING.

## **PART 4 - MEASUREMENT AND PAYMENT**

### **0.1 MEASUREMENT**

- A. Single-faced and double-faced guard rail will each be measured by the linear foot along the top edge of the rail complete in place, from center to center of end posts, including all posts and fasteners.
- B. Single-faced and double-faced terminal sections will be measured by the number of units complete in place.

### **0.2 PAYMENT**

- A. Guardrail and terminal sections will be paid for at the Contract unit prices for the quantities determined as specified above.

### **0.3 PAYMENT ITEMS**

ITEM NO.	DESCRIPTION	UNIT
0261.020	GUARD RAIL	LF
0261.021	TERMINAL SECTIONS FOR GUARD RAIL	EA

**END OF SECTION**

## **NOTES TO THE DESIGNER**

- A. Any request to modify or waive the specification requirements listed below must be approved in writing by the MBTA's Director of Design:
  - 1. None